

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- 1-10 (cancelled)
11. (currently amended) A catheter comprising:
an elongated catheter shaft having a lumen; and
a variable stiffness mandrel disposed in said shaft lumen, having a solid core comprised of a non-metal material, and having an annealed proximal section with a first crystallinity and a non-annealed distal section with a second crystallinity lower than said proximal section first crystallinity such that the proximal section is stiffer than the distal section.
12. (currently amended) The catheter of claim 11 wherein said material is selected from the group consisting of polyamides, ~~PEEK, PPS, PEI, PI,~~
polyetheretherketone, polyphenylene sulfide, polyetheramide, polyimide, and any combination thereof.
13. (previously presented) The catheter of claim 11 wherein said proximal section is larger than a diameter of said distal section of said mandrel.
14. (previously presented) The catheter of claim 11 further comprising an inflatable member secured to the catheter shaft, wherein said distal section of said mandrel extends to a location along the length of the catheter located in the inflatable member.

15. (previously presented) The catheter of claim 11 further comprising an inflatable member secured to the catheter shaft, and wherein the distal section of the mandrel extends to a location proximal to the inflatable member.

16. (previously presented) The catheter of claim 11 wherein the mandrel is fusion bonded to the catheter shaft.

17. (previously presented) The catheter of claim 11 wherein said mandrel is formed by necking at high temperatures such that said proximal section is stiffer than said distal section.

18. (previously presented) The catheter of claim 11 wherein said mandrel is formed by taper extruding such that said proximal section is stiffer than said distal section.

19. (currently amended) A catheter comprising:
an outer member;
a hollow inner member extending through said outer member;
an outer lumen between said inner and outer members; and
a non-metal mandrel formed of a polyetheretherketone polymeric material, extending through said outer lumen, said mandrel having an annealed proximal section having a first crystallinity and a non-annealed distal section having a second crystallinity lower than the proximal section first crystallinity, and being uniformly tapered from the proximal section to the distal section.

20. (cancelled)

21. (previously presented) The catheter of claim 19 wherein a diameter of said proximal section is larger than a diameter of said distal section of said uniformly tapered mandrel.

22. (previously presented) The catheter of claim 19 further comprising an inflatable member having an inflatable interior, and comprising a proximal portion secured to a distal portion of the outer member and a distal portion secured to a distal portion of the inner member, wherein said distal section of said mandrel extends to a location along the length of the catheter located in the inflatable member.

23. (previously presented) The catheter of claim 19 further including an inflatable member secured to the outer member and the hollow inner member with an interior in fluid communication with the outer lumen and wherein the distal section of the mandrel extends to a location proximal to the inflatable member.

24. (cancelled)

25. (previously presented) The catheter of claim 19 wherein said mandrel is formed by necking at high temperatures such that said proximal section is stiffer than said distal section.

26. (previously presented) The catheter of claim 19 wherein said mandrel is formed by taper extruding each such that said proximal section is stiffer than said distal section.

Claims 27-50 (cancelled)

51. (currently amended) A catheter, comprising:
an elongated shaft having an inflation lumen;
a balloon secured to a distal portion of the shaft with an interior in fluid communication with the inflation lumen; and
a non-metal material mandrel in the elongated shaft, and comprising an annealed proximal section ~~having a first crystallinity~~ and a non-annealed distal section ~~having a second crystallinity lower than the first crystallinity of the proximal section, said~~

~~mandrel uniformly tapered from said proximal section to said distal section, such that said proximal section is stiffer than said distal section.~~

52. (cancelled)

53. (previously presented) The catheter of claim 51 wherein the mandrel is formed of a polyetheretherketone polymeric material.

Claims 54-55 (cancelled)

56. (currently amended) The ~~apparatus~~ catheter of claim 51 wherein the mandrel has a diameter tapering from the proximal end of the mandrel to the distal end of the mandrel.

57. (previously presented) The catheter of claim 11 wherein said mandrel is fixed to a catheter shaft to lock said mandrel in place relative to said catheter shaft.

58. (currently amended) The catheter of claim 11 further comprising an inner tubular member disposed near said mandrel, wherein said inner tubular member is ~~adapted to receive a~~ defines a guidewire receiving lumen.

59. (previously presented) The catheter of claim 19, wherein said mandrel is fixed to lock said mandrel in place relative to said catheter outer member.

60. (currently amended) The catheter of claim 19 wherein said hollow inner member is ~~adapted to receive a~~ defines a guidewire receiving lumen.

Claims 61-63 (cancelled)

64. (currently amended) The ~~apparatus~~ catheter of claim 51 wherein said mandrel is formed of a polymer compatible with a polymer forming the catheter shaft,

and the mandrel is fusion bonded to the catheter shaft to lock said mandrel in place relative to said catheter.

65. (currently amended) The ~~apparatus~~ catheter of claim 51 further comprising an inner tubular member disposed within said catheter and ~~adapted to receive a~~ defining a guidewire receiving lumen.